

Address: Port Talbot Dialysis Unit

Job Number: 240387 A
Date: 30th of July 2024



Structural Appraisal of Former Factory premises



at:
Stationery House
Acacia Avenue
Neath Port Talbot
SA12 7DP

Client:
Sandycroft Projects Ltd
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1.0 INTRODUCTION

- 1.1 C2C Consulting Engineers Ltd were instructed to carry out a Structural Assessment of the detached factory unit of steel portal frame construction with single storey brickwork ancillary building across the front elevation. The premises are located opposite Baglan Bay Retail Park at Stationery House, Acacia Avenue, Neath Port Talbot.
- 1.2 Our Engineer visited the site on Wednesday the 3rd of July 2024 to carry out this inspection.
- 1.3 It is proposed to convert the existing vacant factory unit into a new 27 station Dialysis unit. The development will seek to demolish a substantial part of the existing buildings to create a more desirable area for development and to adapt the internal space into a usable health care facility.
- 1.4 The proposed conversion is detailed on CTD Architects drawings reference 2407-AL10, AL11, AL12A, AL13, AL14, AL15, AL16, AL17, AL18, AL19, AL23, AL24 which indicates the desired ground floor layout and intended elevation treatment. The existing roof and wall fabric will be replaced with modern insulated materials as part of the proposed alterations.
- 1.5 The inspection comprised a general, visual examination of the exposed accessible surfaces and areas of the factory unit. We have not examined the woodwork, various surfaces and other parts of the building's structure and fabric concealed at the time of inspection and we are, therefore, unable to comment on the condition of such areas. We have not consulted with the Local Authority or other statutory bodies.

2.0 GENERAL DESCRIPTION

- 2.1 The former factory building is single storey, formed of a three-pitch steel portal frame type building to the Northeast of the site with a traditional masonry structure under a shallow pitch mono roof across the front elevation. The elevations to the portal frame section appear to be constructed in facing brick and internal blockwork up to approximately 2.5m, with a form of corrugated asbestos cladding above. The roof structure is also clad in a similar asbestos panel.
- 2.2 The topography of the plot is such that the ground levels are generally flat across the site. The buildings are set to both soft and hard landscaping with part concrete hardstanding and tarmac areas beyond the front of the building.
- 2.3 A trial pit and excavation was undertaken along the Northwest side elevation in order to establish the nature and depth of the building foundations and also the ground conditions providing the support. In addition, two core holes were carried out within the ground floor slab in order to confirm the concrete thickness, if any reinforcement was present and the nature of the sub grade material beneath the slab.

3.0 DETAILED DESCRIPTION

- 3.1 The main open plan factory unit appears to be constructed of a duo pitched steel portal frame incorporating a part monopitch section beyond the main portal stanchion line along the Southwest side of the building. The steel frame structure is formed of ten bays located at approximately 6.6m centres.
- 3.2 The elevations are clad in cavity masonry up to approximately 2.5m, above which vertically spanning corrugated asbestos panels are supported between equally spaced cladding rails on the gables and a sheeting rail and gutter support to the rear elevation.
- 3.3 The roof structure appears to be constructed of a corrugated asbestos or cement board cladding spanning between proprietary 'Z' purlins, which themselves span between extended cleats fixed to the top flange of the primary portal rafters.
- 3.4 Plan bracing was noted within the roof plane of the portal frame structure located at either end of the building. A single cross brace is noted in the rear elevation formed of rolled steel angles. No further formal bracing elements were noted throughout the building. In addition, there did not appear to be an eaves beam present spanning between the columns along the rear elevation.
- 3.5 The structure across the front elevation which forms the offices and ancillary areas appears to be traditional cavity masonry construction supporting isolated steel beams and purlins which provide support to the corrugated steel roof finishes.
- 3.6 Two trial pits had been excavated on site to establish the nature, extent and depth of the supporting foundation and also determine the ground conditions. One hole was carried out mid-way along the Northwest gable elevation. This indicated a concrete foundation at a depth of about 750mm below ground level which had a spread of about 200mm from the external face of the wall and was 500mm deep. The second hole was excavated to the front of the building as part of the percolation test, this confirmed the ground conditions appear fairly consistent between the two. These being orange/red fine sands with layers of black sands/organic matter at depths below 1.0m. Significant water ingress was noted coming into the trench below 1.0m below ground level.
- 3.7 Whilst on site we were able to discuss with the geotechnical engineer who was undertaking the percolation test at the time, the ground conditions in this area. It was confirmed that peat deposits are expected to exist below the site, and it was expected that the existing building would have a piled foundation, although no evidence was encountered during the isolated trial hole excavations.

- 3.8 The ground floor slab is of concrete construction. Visually the slab appeared to be in reasonable order with no notable doming or distortions seen along its length. Some fracturing was noted in the slab at various locations, however, this appeared to be of a long-standing nature and is considered likely due to initial shrinkage of the floor slab shortly after its construction. Core holes were taken through the slab at opposite corners of the building. The results were consistent, indicating a 150mm thick concrete slab with 6mm diameter reinforcement at mid depth. The slab appeared to bear directly onto a layer of compacted hardcore material suggesting the slab could be of a traditional slab on grade nature. No damp proof membrane was noted under the slab.
- 3.9 The rainwater goods appear to be in poor condition with some sections of guttering damaged. The guttering and down pipes maybe of an asbestos nature.

4.0 CONCLUSIONS AND RECOMMENDATIONS

- 4.1 From the observations made we would confirm that the existing structure could be adapted to incorporate the proposed changes. However, we would recommend that a formalised regime of repair and new construction is drawn up and undertaken which encompasses such items as the following.
- 4.2 It is proposed to demolish the ancillary buildings across the front elevation including the monopitch section of the steel framed structure located directly behind. In addition, a single bay of the portal frame is to be removed from the Northwest side and three bays from the Southeast, to provide an efficient building space for the end users' needs and increased external parking areas.
- 4.3 New structure is to be formed across the side elevations of the revised portal framed footprint, to create the gable elevations. New foundations will be required to support the proposed replacement cladding across this elevation. Cladding rails are required to span between gable posts which will need to be sited off isolated foundations. Foundations are considered to be of a twin pile and reinforced cap nature ensuring they are supported off competent material.
- 4.4 The stability of the steel frame will need to be considered in both its temporary and permanent state. Roof bracing should be introduced into the end bays, it is considered that the existing bracing is not likely to be adequate to reuse and as a consequence replacement steel is to be added. Bracing will also need to be formed in the side elevations, in addition to a review of the expected uplift loads which are likely to result in having to increase the foundation concrete locally in these areas to provide dead load to maintain equilibrium.
- 4.5 It was noted that a steel beam was absent at eaves level across the Northeast elevation, consideration should be given to incorporating a new tie beam at this level.

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- 4.6 In general the primary steelwork and roof purlins appeared to be in good order, there was no notable deflections or distortions noted to the steel members or any discernable corrosion. However, the existing steel frame will require a thorough design appraisal to confirm its adequacy for conversion.
- 4.7 New rainwater goods are to be incorporated into the proposed development and formalisations of drainage onsite.
- 4.8 Notwithstanding the points above. C2C Consulting Engineers are satisfied the proposed new renal facility may be converted within the reduced footprint of the existing factory unit using where appropriate the existing or slightly modified support structure around any new load bearing construction.

Yours Sincerely

A handwritten signature in black ink, appearing to read 'Tim Wright'.

Tim Wright
Associate Director
BEng.(Hons) IEng AMIStructE
For and on behalf of C2C Consulting Engineers Ltd

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Standard Scope and Limitations

This report has been prepared to provide guidance on the structural condition of the property.

We have only inspected and reported upon the defects within the property, as instructed by the client.

The report is based upon a visual inspection of those areas of the property that were readily accessible at the time of the inspection. It is not normal practice to remove internal finishes, lift carpets or move furniture etc. As such, comments cannot be made on those parts of the structure that were inaccessible or hidden from view at the time of the inspection.

We have limited our report to the most important aspects as stated in the text. The report does not provide a checklist of all repairs and improvements that might be desirable.

Our inspection did not include:-

1. Inspection of non-structural items such as doors, door frames, windows, floor, wall, and ceiling finishes, other than where they are relevant to structural movement.
2. We have not inspected any services such as electric, gas, water and drainage.
3. We have not inspected those parts of the structure, which were covered, unexposed or inaccessible and we are therefore unable to report that such parts of the property are free from defect.

This report is for the private and confidential use of the client for whom it is prepared.